

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.09.98  
Test oil : ISO 4113

Combination No. : 0 402 796 039

Injection pump  
Pump designation : PES6H110/32ORS21  
EP type number : 0 412 716 005

Governor  
Governor design. : RE36  
Governor no. : 0 421 890 373

Cust. part No. : 51.11103-7529

Customer-spec. information

Customer : MAN  
Motor : D0826 LF13/LFLO9  
Power KW : 191.0

TEST BENCH REQUIREMENTS

Inlet line : 3.0

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

A01

x inside diameter : 2.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 8.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
 CRT mm : 13.00  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
 CRT mm : 6.15  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
 CRT mm : 12.50  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
 CRT mm : 5.50  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
 deenergised adjusting magnet  
 and control rod in  
 stop position.

CRT mm : 0.75  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065  
 CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
 Tolerance Volt : +/- 0,115  
 CRT mm : 19,00  
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR  
(All P and R pumps not  
 H and M pumps)

Test with control rod  
 in stop position

Engine speed min-1: 60  
 Amplitude V : 1.4  
 Tolerance V : +/- 0.6  
 Check tolerance V : +/- 1.20

Engine speed min-1: 600  
 Difference  
 Amplitude to  
 Amplitude V : max.1.4

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(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 850  
 Uact V : 2.490  
 Prestroke solenoid  
 Stroke mm : 11.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 224.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 4.0

FUEL DELIVERY CHARACTERISTICS

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Rated speed rpm : 1150  
 Uact V : 2.440  
 Prestroke solenoid  
 Stroke mm : 9.30  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 206.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 6.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 10.0

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Rated speed rpm : 500  
Uact V : 1.750  
Prestroke solenoid  
Stroke mm : 9.80  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 9.0

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Rated speed rpm : 700  
Prestroke solenoid  
Stroke mm : 9.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.310  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.080  
Prestroke solenoid  
Stroke mm : 11.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

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STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.050  
Prestroke solenoid  
Stroke mm : 5.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 12.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.09.98  
Test oil : ISO 4113

Combination No. : 0 402 795 203

Injection pump  
Pump designation : PES5H120/720/3LS1010  
EP type number : 0 412 725 206

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 371

Cust. part No. : 51.11103-7476

Customer-spec. information

Customer : MAN  
Motor : D 2865 LF 09  
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

A04

x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
 CRT mm : 13.00  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
 CRT mm : 6.15  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
 CRT mm : 12.50  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
 CRT mm : 5.50  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
 deenergised adjusting magnet  
 and control rod in  
 stop position.  
 CRT mm : 0.75  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
 Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
 Tolerance Volt : +/- 0,115  
 CRT mm : 19,00  
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
 Amplitude V : 1.4  
 Tolerance V : +/- 0.6  
 Check tolerance V : +/- 1.20

Engine speed min-1: 600  
 Difference  
 Amplitude to  
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750  
 Uact V : 3.350  
 Prestroke solenoid  
 Stroke mm : 10.00  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 326.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 4.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000  
 Uact V : 3.290  
 Prestroke solenoid  
 Stroke mm : 8.00  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 306.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 8.0

Rated speed rpm : 500

Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0

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Rated speed rpm : 700  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : +- 0.060  
Check tolerance  
Volt : +- 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 174.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 14.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.09.98  
Test oil : ISO 4113  
Combination No. : 0 402 795 204  
Injection pump  
Pump designation : PES5H120/720/3LS1011  
EP type number : 0 412 725 207  
Governor  
Governor design. : RE33  
Governor no. : 0 421 890 371

Cust. part No. : 51.11103-7538

Customer-spec. information  
Customer : MAN  
Motor : D 2865 LF 09  
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 082  
Inlet press. bar : 3.0  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

A07

x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
Tolerance Volt : +/- 0,115  
CRT mm : 19,00  
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

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(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.350  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 326.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0

FUEL DELIVERY CHARACTERISTICS

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Rated speed rpm : 1000  
Uact V : 3.290  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 306.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 8.0

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Rated speed rpm : 500



Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

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Rated speed rpm : 700  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 174.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.09.98  
Test oil : ISO 4113

Combination No. : 0 402 795 205

Injection pump  
Pump designation : PES5H120/720/3LS1013  
EP type number : 0 412 725 209

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 372

Cust. part No. : 51.11103-7540

Customer-spec. information  
Customer : MAN  
Motor : D 2865 LUH 07  
Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : +- 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 10.00  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

Start of delivery blocking

Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
Tolerance Volt : +/- 0,115  
CRT mm : 19,00  
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

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(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.350  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 332.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0

FUEL DELIVERY CHARACTERISTICS

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Rated speed rpm : 1000  
Uact V : 3.290  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 312.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 8.0

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Rated speed rpm : 500

Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm3/1000 strokes : 173.0  
Tolerance  
cm3/1000 strokes : +- 4.0  
Check tolerance  
cm3/1000S. : +- 8.0

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Rated speed rpm : 700  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 70.0  
Tolerance  
cm3/1000 strokes : +- 4.0  
Check tolerance  
cm3/1000S. : +- 8.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : +- 0.060  
Check tolerance  
Volt : +- 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm3/1000 strokes : 32.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

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STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm3/1000 strokes : 185.0  
Tolerance  
cm3/1000 strokes : +- 10.0

Check tolerance  
cm3/1000S. : +- 14.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.09.98  
Test oil : ISO 4113  
Combination No. : 0 402 796 040

Injection pump  
Pump designation : PES6H120/32ORS22  
EP type number : 0 412 726 011

Governor  
Governor design. : RE36  
Governor no. : 0 421 890 373

Cust. part No. : 51.11103-7537

Customer-spec. information

Customer : MAN  
Motor : D 0826 LUH 12  
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3.0

Test oil inlet temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : +- 0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 8.00  
Tolerance mm : +- 0.05  
Check tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check tolerance °NW : +- 0.75

Start of delivery blocking

Tolerance : +- 0.50  
Check tolerance °NW : +- 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
 CRT mm : 13.00  
 Tolerance mm : +/- 0.05  
 Check  
 tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
 CRT mm : 6.15  
 Tolerance mm : +/- 0.25  
 Check  
 tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
 CRT mm : 12.50  
 Tolerance mm : +/- 0.05  
 Check  
 tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
 CRT mm : 5.50  
 Tolerance mm : +/- 0.25  
 Check  
 tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
 deenergised adjusting magnet  
 and control rod in  
 stop position.

CRT mm : 0.75  
 Tolerance mm : +/- 0.25  
 Check  
 tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
 Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
 Tolerance Volt : +/- 0,115  
 CRT mm : 19,00  
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
 Amplitude V : 1.4  
 Tolerance V : +/- 0.6  
 Check  
 tolerance V : +/- 1.20

Engine speed min-1: 600  
 Difference  
 Amplitude to  
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 800  
 Uact V : 2.510  
 Prestroke solenoid  
 Stroke mm : 13.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 222.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 4.0  
 FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1200  
 Uact V : 2.540  
 Prestroke solenoid  
 Stroke mm : 10.30  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 209.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 6.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 10.0

Rated speed rpm : 500

Uact V : 1.930  
Prestroke solenoid  
Stroke mm : 10.40  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

Rated speed rpm : 700  
Prestroke solenoid  
Stroke mm : 10.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.440  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.080  
Prestroke solenoid  
Stroke mm : 8.80  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 10.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.09.98  
Test oil : ISO 4113

Combination No. : 0 402 796 202

Injection pump  
Pump designation : PES6H120/720/3LS1017  
EP type number : 0 412 726 213

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 371

Cust. part No. : 51.11103-7477

Customer-spec. information

Customer : MAN  
Motor : D 2866 LF 16  
Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

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x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V



TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720

Tolerance Volt : +/- 0,065  
CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
Tolerance Volt : +/- 0,115  
CRT mm : 19,00  
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.350  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 328.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 1000  
Uact V : 3.290  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 308.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 8.0

---

Rated speed rpm : 500  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 168.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0

---

Rated speed rpm : 700  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : +- 0.060  
Check tolerance  
Volt : +- 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 14.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.09.98  
Test oil : ISO 4113

Combination No. : 0 402 796 203

Injection pump  
Pump designation : PES6H120/720/3LS1016  
EP type number : 0 412 726 212

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 372

Cust. part No. : 51.11103-7479

Customer-spec. information

Customer : MAN  
Motor : D 2866 LUH 21  
Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
 CRT mm : 13.00  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
 CRT mm : 6.15  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
 CRT mm : 12.50  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
 CRT mm : 5.50  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
 deenergised adjusting magnet  
 and control rod in  
 stop position.

CRT mm : 0.75  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720

Tolerance Volt : +- 0,065  
 CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
 Tolerance Volt : +- 0,115  
 CRT mm : 19,00  
 Tolerance mm : +- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not  
 H and M pumps)

Test with control rod  
 in stop position

Engine speed min-1: 60  
 Amplitude V : 1.4  
 Tolerance V : +/- 0.6  
 Check tolerance V : +/- 1.20

Engine speed min-1: 600  
 Difference  
 Amplitude to  
 Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750  
 Uact V : 3.350  
 Prestroke solenoid  
 Stroke mm : 10.00  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 332.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 4.0  
 FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 1000  
 Uact V : 3.290  
 Prestroke solenoid  
 Stroke mm : 8.00  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 312.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +- 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +- 8.0

---

Rated speed rpm : 500  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

Rated speed rpm : 700  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.09.98  
Test oil : ISO 4113

Combination No. : 0 402 796 205

Injection pump  
Pump designation : PES6H120/720/3LS1015  
EP type number : 0 412 726 211

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 372

Cust. part No. : 51.11103-7541

Customer-spec. information

Customer : MAN  
Motor : D 2866 LUH 21  
Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 10.00  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
 CRT mm : 13.00  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
 CRT mm : 6.15  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
 CRT mm : 12.50  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
 CRT mm : 5.50  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
 deenergised adjusting magnet  
 and control rod in  
 stop position.

CRT mm : 0.75  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
 Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
 Tolerance Volt : +/- 0,115  
 CRT mm : 19,00  
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
 Amplitude V : 1.4  
 Tolerance V : +/- 0.6  
 Check tolerance V : +/- 1.20

Engine speed min-1: 600  
 Difference  
 Amplitude to  
 Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750  
 Uact V : 3.350  
 Prestroke solenoid  
 Stroke mm : 10.00  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 332.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 4.0  
 FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 1000  
 Uact V : 3.290  
 Prestroke solenoid  
 Stroke mm : 8.00  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 312.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 8.0

---

Rated speed rpm : 500

Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

Rated speed rpm : 700  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.500  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.080  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.10.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 796 827  
  
Injection pump  
Pump designation : PES6P120A720RS7356  
EP type number : 0 412 726 919  
  
Governor  
Governor design. : RE30  
Governor no. : 0 421 890 017

Cust. part No. : RE 501867

Customer-spec. information  
Customer : DEERE  
Motor : 6081 HH004  
Power Kw : 242.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 077  
  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 103  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 089  
  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 0.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Start of delivery blocking  
  
°NW after s.o.d. : 8.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Barrel no. : 1

---

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check

tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
Tolerance Volt : +/- 0,065  
CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
Tolerance Volt : +/- 0,115  
CRT mm : 19,00  
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min<sup>-1</sup>: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min<sup>-1</sup>: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050  
Uact V : 3.030  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 213.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 700  
Uact V : 3.120  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 237.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

TEST POINT L1

Rated speed rpm : 450  
Uact V : 1.740  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.060  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 4.550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 25.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.10.98  
Test oil : ISO 4113  
Combination No. : 0 402 696 805  
Injection pump  
Pump designation : PE6P120A320LS7922  
EP type number : 0 412 626 975  
Governor  
Governor design. : RE30  
Governor no. : 0 421 890 045

Cust. part No. : 9883189

Customer-spec. information  
Customer : LIEBHERR  
Motor : D9406TI-EA4  
Power KW : 330.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 0.50  
Firing order : 1- 6- 3- 5- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery blocking  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
Tolerance Volt : +/- 0,115  
CRT mm : 19,00  
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1050  
Uact V : 3.000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 800  
Uact V : 2.880  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 302.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0

---

Rated speed rpm : 550  
Uact V : 2.190  
Del. quantity  
cm3/1000 strokes : 207.0  
Tolerance  
cm3/1000 strokes : +- 4.0  
Check tolerance  
cm3/1000S. : +- 6.0

TEST POINT L1

Rated speed rpm : 350  
Uact V : 1.330  
Tolerance Volt : +- 0.060  
Check tolerance  
Volt : +- 0.060  
Del. quantity  
cm3/1000 strokes : 15.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.340  
Del. quantity  
cm3/1000 strokes : 150.0  
Tolerance  
cm3/1000 strokes : +- 10.0  
Check tolerance  
cm3/1000S. : +- 14.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.10.98  
Test oil : ISO 4113  
Combination No. : 0 402 196 717

Injection pump  
Pump designation : PES6P120B720RS3409  
EP type number : 0 412 026 812

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 029

Cust. part No. : RE 502978

Customer-spec. information  
Customer : DEERE  
Motor : 6081AT002  
Power KW : 135.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 077  
  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Test nozzle holder assembly : 1 688 901 101  
  
Opening pressure bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 089  
  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300

Start of delivery mark

°NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check tolerance °NW : ± 0.75  
  
Barrel no. : 1  
  
Beginning of delivery difference and maximum rack travel : 15.00  
Tolerance mm : ± 0.50  
Difference ° CS : 2.50

---

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25

Check  
tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
Tolerance Volt : +/- 0,065  
CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
Tolerance Volt : +/- 0,115  
CRT mm : 19,00  
Tolerance mm : +/- 0,80

ENGINE--SPEED SENSOR

(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min<sup>-1</sup>: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min<sup>-1</sup>: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100  
Uact V : 2.880  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 700  
Uact V : 2.880



Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 425  
Uact V : 1.610  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425  
Uact V : 1.610  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.060

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 4.600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 13.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.10.98  
Test oil : ISO 4113  
Combination No. : 0 402 196 718

Injection pump  
Pump designation : PES6P120B720RS3409  
EP type number : 0 412 026 812

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 029

Cust. part No. : RE 502979

Customer-spec. information  
Customer : DEERE  
Motor : 6081HRW02  
Power KW : 163.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

B06

x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery blocking

°NW after s.o.d. : 7.75  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack  
travel : 15.00  
Tolerance mm : ± 0.50  
Difference ° CS : 2.50

---

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25

Check  
tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
Tolerance Volt : +/- 0,065  
CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
Tolerance Volt : +/- 0,115  
CRT mm : 19,00  
Tolerance mm : +/- 0,80

ENGINE--SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min<sup>-1</sup>: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min<sup>-1</sup>: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 1100  
Uact V : 2.880  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 700  
Uact V : 2.880

Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 425  
Uact V : 1.610  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### TEST POINT L1

Rated speed rpm : 425  
Uact V : 1.610  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.060

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 4.600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 13.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.98  
Test oil : ISO 4113

Combination No. : 0 401 496 001

Injection pump  
Pump designation : PE6R120/72ORS1502  
EP type number : 0 411 426 002

Governor  
Governor design. : RE31  
Governor no. : 0 421 890 200

Cust. part No. : 1556156  
: -P07 v. 12/95

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : TD 163 ES,EJ  
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 098

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
 CRT mm : 13.00  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
 CRT mm : 6.15  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
 CRT mm : 12.50  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
 CRT mm : 5.50  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with deenergised adjusting magnet and control rod in stop position.

CRT mm : 0.75  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
 Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
 Tolerance Volt : +/- 0,115  
 CRT mm : 19,00  
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR  
(All P and R pumps not H and M pumps)

Test with control rod in stop position

Engine speed min-1: 60  
 Amplitude V : 1.4  
 Tolerance V : +/- 0.6  
 Check tolerance V : +/- 1.20

Engine speed min-1: 600  
 Difference Amplitude to Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 550  
 Uact V : 2.950  
 Del. quantity cm3/1000 strokes : 395.0  
 Tolerance cm3/1000 strokes : +/- 1.0  
 Check tolerance cm3/1000S. : +/- 4.0  
 Speed Tolerance cm3/1000 strokes : 6.0  
 Check tolerance cm3/1000S. : 10.0

FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 950  
 Uact V : 2.750  
 Del. quantity cm3/1000 strokes : 295.0  
 Tolerance cm3/1000 strokes : +/- 3.0  
 Check tolerance cm3/1000S. : +/- 6.0  
 Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 9.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

---

Rated speed rpm : 950  
Uact V : 2.000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.530  
Tolerance Volt : +- 0.060  
Check tolerance  
Volt : +- 0.060  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.98  
Test oil : ISO 4113

Combination No. : 0 401 496 003

Injection pump  
Pump designation : PE6R120/72ORS1504  
EP type number : 0 411 426 003

Governor  
Governor design. : RE31  
Governor no. : 0 421 890 200

Cust. part No. : 1556415  
: -P10v20.11.96

---

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : TD 164  
Power KW : 382.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 098

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

---

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1



(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check

tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
Tolerance Volt : +/- 0,065  
CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
Tolerance Volt : +/- 0,115  
CRT mm : 19,00  
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min<sup>-1</sup>: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min<sup>-1</sup>: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 525  
Uact V : 2.950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 390.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0  
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 900  
Uact V : 3.240  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 386.0

Tolerance  
cm3/1000 strokes : ± 3.0  
Check tolerance  
cm3/1000S. : ± 6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 9.0  
Check tolerance  
cm3/1000S. : 13.0

---

Rated speed rpm : 900  
Uact V : 2.000  
Del. quantity  
cm3/1000 strokes : 163.0  
Tolerance  
cm3/1000 strokes : ± 3.0  
Check tolerance  
cm3/1000S. : ± 6.0

TEST POINT L1

Rated speed rpm : 265  
Rated speed rpm : 265  
Uact V : 1.630  
Uact V : 1.630  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.060  
Del. quantity  
cm3/1000 strokes : 19.0  
Del. quantity  
cm3/1000 strokes : 20.0  
Tolerance  
cm3/1000 strokes : ± 3.0  
Tolerance  
cm3/1000 strokes : ± 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 7.0  
Tolerance  
cm3/1000 strokes : 7.0  
Check tolerance  
cm3/1000S. : 11.0  
Check tolerance  
cm3/1000S. : 11.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.98  
Test oil : ISO 4113  
Combination No. : 0 401 496 004  
Injection pump  
Pump designation : PE6R120/720RS1512  
EP type number : 0 411 426 005

Governor  
Governor design. : RE31  
Governor no. : 0 421 890 202

Cust. part No. : 1556958  
: -P02 v. 03/98

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : TD 164  
Power KW : 382.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 098  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 5.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

---

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
Tolerance Volt : +/- 0,065  
CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
Tolerance Volt : +/- 0,115  
CRT mm : 19,00  
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min<sup>-1</sup>: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min<sup>-1</sup>: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 525  
Uact V : 2.950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 390.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 900

Uact V : 3.240  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 385.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 9.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

---

Rated speed rpm : 900  
Uact V : 2.000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

TEST POINT L1

Rated speed rpm : 265  
Rated speed rpm : 265  
Uact V : 1.630  
Uact V : 1.630  
Tolerance Volt : +- 0.060  
Check tolerance  
Volt : +- 0.060  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.98  
Test oil : ISO 4113

Combination No. : 0 402 896 009

Injection pump  
Pump designation : PE6P120A320RS8020  
EP type number : 0 412 826 021

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 010

Cust. part No. : 479889-P03 V.08/95

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : TD123,TD103 E ES  
Power KW : 290.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 098

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR  
POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
Tolerance Volt : +/- 0,065  
CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500

Tolerance Volt : +/- 0,115  
CRT mm : 19,00  
Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

#### (C) INJECTION PUMP WITH POSITIONER

##### TEST POINT V1

Rated speed rpm : 600  
Uact V : 2.800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 302.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0  
FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 950  
Uact V : 2.800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 258.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Rated speed rpm : 950  
Uact V : 2.200  
Del. quantity  
cm3/1000 strokes : 183.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0

TEST POINT L1

Rated speed rpm : 250  
Uact V : 1.400  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.060  
Del. quantity  
cm3/1000 strokes : 22.0  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 8.0

---

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.98  
Test oil : ISO 4113

Combination No. : 0 402 896 015

Injection pump  
Pump designation : PE6P120A320RS8033  
EP type number : 0 412 826 031

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 027

Cust. part No. : 425758 P05 v. 11/95

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : DH 10 A  
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 097

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 3.0  
Tolerance bar : ± 0.2

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
 CRT mm : 13.00  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
 CRT mm : 6.15  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
 CRT mm : 12.50  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
 CRT mm : 5.50  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
 deenergised adjusting magnet  
 and control rod in  
 stop position.

CRT mm : 0.75  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
 Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
 Tolerance Volt : +/- 0,115  
 CRT mm : 19,00  
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR  
(All P and R pumps not  
 H and M pumps)

Test with control rod  
 in stop position

Engine speed min-1: 60  
 Amplitude V : 1.4  
 Tolerance V : +/- 0.6  
 Check tolerance V : +/- 1.20

Engine speed min-1: 600  
 Difference  
 Amplitude to  
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600  
 Uact V : 2.800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 295.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 4.0

Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0

FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950  
 Uact V : 2.800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 252.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 6.0  
 Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Rated speed rpm : 950  
Uact V : 2.200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 178.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

TEST POINT L1

Rated speed rpm : 250  
Uact V : 1.470  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.060  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.98  
Test oil : ISO 4113

Combination No. : 0 402 896 016

Injection pump  
Pump designation : PE6P120A320RS8034  
EP type number : 0 412 826 032

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 028

Cust. part No. : 8194088 P06 v.02.98

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : D 10, DH 10  
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 097

Inlet press. bar : 3.0  
Tolerance bar : +- 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 3.0  
Tolerance bar : +- 0.2

Prestroke mm : 4.40  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 8.50  
Tolerance mm : +- 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

Barrel no. : 1

(B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
 CRT mm : 13.00  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
 CRT mm : 6.15  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
 CRT mm : 12.50  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
 CRT mm : 5.50  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
 deenergised adjusting magnet  
 and control rod in  
 stop position.

CRT mm : 0.75  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
 Tolerance Volt : +- 0,065

CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
 Tolerance Volt : +- 0,115  
 CRT mm : 19,00  
 Tolerance mm : +- 0,80

ENGINE-SPEED SENSOR  
(All P and R pumps not  
 H and M pumps)

Test with control rod  
 in stop position

Engine speed min-1: 60  
 Amplitude V : 1.4  
 Tolerance V : +/- 0.6  
 Check tolerance V : +/- 1.20

Engine speed min-1: 600  
 Difference Amplitude to  
 Amplitude V : max.1.4

---

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600  
 Uact V : 2.800  
 Del. quantity cm<sup>3</sup>/1000 strokes : 303.0  
 Tolerance cm<sup>3</sup>/1000 strokes : +- 1.0  
 Check tolerance cm<sup>3</sup>/1000S. : +- 4.0  
 Speed Tolerance cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance cm<sup>3</sup>/1000S. : 11.0  
 FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 950  
 Uact V : 2.800  
 Del. quantity cm<sup>3</sup>/1000 strokes : 261.0  
 Tolerance cm<sup>3</sup>/1000 strokes : +- 3.0  
 Check tolerance cm<sup>3</sup>/1000S. : +- 6.0  
 Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Rated speed rpm : 950  
Uact V : 2.200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

TEST POINT L1

Rated speed rpm : 250  
Uact V : 1.470  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.060  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.11.98  
Test oil : ISO 4113

Combination No. : 0 402 896 020

Injection pump  
Pump designation : PE6P120A320RS8057  
EP type number : 0 412 826 041

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 028

Cust. part No. : 8194566 P01 v.02.98

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : D 10  
Power KW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 097

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 3.0  
Tolerance bar : ± 0.2

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 8.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
 CRT mm : 13.00  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
 CRT mm : 6.15  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
 CRT mm : 12.50  
 Tolerance mm : +/- 0.05  
 Check tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
 CRT mm : 5.50  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.30

Stop position  
(P, R and H pump)

Uact V : Value with  
 deenergised adjusting magnet  
 and control rod in  
 stop position.

CRT mm : 0.75  
 Tolerance mm : +/- 0.25  
 Check tolerance mm : +/- 0.35

Stop position  
(M pump)

Uact V : 0,720  
 Tolerance Volt : +/- 0,065

CRT mm : 1,00

Starting position  
(M pump)

Uact V : 4,500  
 Tolerance Volt : +/- 0,115  
 CRT mm : 19,00  
 Tolerance mm : +/- 0,80

ENGINE-SPEED SENSOR

(ALL P and R pumps not  
 H and M pumps)

Test with control rod  
 in stop position

Engine speed min-1: 60  
 Amplitude V : 1.4  
 Tolerance V : +/- 0.6  
 Check tolerance V : +/- 1.20

Engine speed min-1: 600  
 Difference  
 Amplitude to  
 Amplitude V : max.1.4

(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 600  
 Uact V : 2.800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 303.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 4.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 11.0  
 FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 950  
 Uact V : 2.800  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 261.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : +/- 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : +/- 6.0  
 Spreed



Tolerance  
cm3/1000 strokes : 10.0  
Check tolerance  
cm3/1000S. : 14.0

---

Rated speed rpm : 950  
Uact V : 2.200  
Del. quantity  
cm3/1000 strokes : 184.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0

TEST POINT L1

Rated speed rpm : 250  
Uact V : 1.470  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.060  
Del. quantity  
cm3/1000 strokes : 22.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 8.0

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End of test specification sheet